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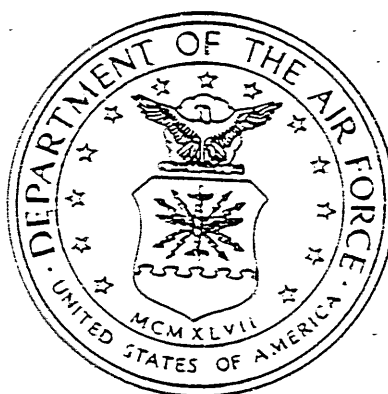
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DEPARTMENT OF THE AIR FORCE

SUPPORTING DATA FOR
FISCAL YEAR 1990/91

BIENNIAL BUDGET ESTIMATES

SUBMITTED TO CONGRESS JANUARY 1989



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DESCRIPTIVE SUMMARIES

RESEARCH, DEVELOPMENT, TEST AND EVALUATION

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FY 1990/1991 BIENNIAL RDT&E DESCRIPTIVE SUMMARY

Program Element: 0301357F Project Number: XXXI
Title: NUDET Detection System (NDS) Budget Activity: 5 - Intelligence and Communications

A. (U) RESOURCES (\$ in Thousands)

Project Title	NUDET Detection System						
Popular Name	FY 1988	FY 1989	FY 1990	FY 1991	To	Total	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Program</u>	
NDS							

B. (U) BRIEF DESCRIPTION OF MISSION REQUIREMENT AND SYSTEM CAPABILITIES:

The NUDET Detection System consists of sensors integrated on the operational Navstar Global Positioning System (GPS) satellites plus a user segment consisting of Ground/Airborne Integrated Terminals (G/AIT). The NDS satellite payload consists of X-ray, optical and electromagnetic pulse (EMP) sensors.

A broad range of users (national Command Authorities, Strategic Air Command, US Space Command, other Unified and Specified Commands) will receive NUDET data, direct from the spacecraft, on the precise location, yield, count, time, and height of burst.

This program element develops and integrates the optical and X-ray sensors into the GPS satellite. This program compliments PE 0102433F which develops and integrates EMP sensors into GPS satellites and develops/procures G/AITs.

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1988 Program: None funded.

(U) FY 1989 Planned Program: None funded.

(U) FY 1990 Planned Program:

- (U) Initiate development for requalification and integration of NDS next generation optical and X-ray sensors into GPS replenishment satellites begun in FY 89 in PE 0305999F.

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Program Element: #0301357F

Project Number: XXXI

Title: NUDET Detection System (NDS)

Budget Activity: FS -Intelligence
and Communications

- (U) Build prototype NDS next generation optical and X-ray sensors for GPS Block IIR satellites begun in FY 89 in PE 0305999F.

(U) FY 1991 Planned Program:

- (U) Complete integration development, requalification, and testing of NDS next generation optical and X-ray sensors for GPS Block IIR satellites.
- (U) Begin development of fixes for deficiencies identified during testing.

(U) Program to Completion:

- (U) This is a continuing program.
- (U) NDS sensor design and production are keyed to the GPS satellite schedule.
- (U) Outyear RDT&E funds will support the development of fixes for deficiencies identified during testing and required system operational improvements.

D. (U) WORK PERFORMED BY:

Rockwell

International, Seal Beach, CA, integrates the NDS sensors on GPS satellites and produces the EMP sensor. Science Applications International Corporation, Manhattan Beach, CA, and the Aerospace Corporation, El Segundo, CA, provide systems engineering support. Sandia National Laboratories, Albuquerque, NM, and Los Alamos National Laboratory, Los Alamos, NM, are under contract to the Department of Energy to produce the X-ray and optical nuclear detonation sensors. Texas Instruments, Dallas, TX, is developing and will produce the G/AIT. E-Systems, Garland, TX, is developing the EMP receiver/processor for the satellite.

E. (U) COMPARISON WITH FY 1988 DESCRIPTIVE SUMMARY:

TYPE OF CHANGE	Impact on System Capabilities	Impact on Schedule	Impact on FY 1990 Cost
Tech	None	None	None
Sched	None	None	None
Cost	None	None	None

NARRATIVE DESCRIPTION OF CHANGES

1. (U) TECHNICAL CHANGES: Not applicable.
2. (U) SCHEDULE CHANGES: Not applicable
3. (U) COST CHANGES: Not applicable

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Program Element: #0301357F Project Number: XXXI
 Title: NUDET Detection System (NDS) Budget Activity: #5 -Intelligence and Communications

F. (U) PROGRAM DOCUMENTATION:

- (U) AFSPACECOM SON 4-77, Aug 77.
- (U) AFSPACECOM SON 203-78, Nov 78; updated May 81.
- (U) SAC SON 11-79, Sep 79.
- (U) DCP 113, Feb 80.
- (U) SOC, Dec 83.
- (U) JCS MROC 4-84, Feb 87.

G. (U) RELATED ACTIVITIES:

- (U) NDS sensors are flown on all Navstar GPS satellites (PE 0305165F) beginning with the GPS launch in July 1983.
- (U)
- (U) The EMP sensors are developed, procured, and integrated into GPS satellites under PE 0102433F.
- (U) G/AIT production for the E-4B will be funded in the National Emergency Airborne Command Post PE 0302015F.
- (U) Integration development of NDS optical and X-ray sensors into GPS satellites is also done under PE 0305999F.
- (U) There is no unnecessary duplication of effort within the Air Force or the Department of Defense.

H. (U) OTHER APPROPRIATION FUNDS (\$ in Thousands):

Missile Procurement, BA 27

	FY 1988 Actual	FY 1989 Estimate	FY 1990 Estimate	FY 1991 Estimate	To Complete	Total Program
Quantity	4	0	0	0	Continuing	TBD

I. (U) INTERNATIONAL COOPERATIVE AGREEMENTS: Not Applicable.

J. (U) MILESTONE SCHEDULE:

- (U) Defense Systems Acquisition Review Council II June 1979
 - (U) Begin Satellite Production September 1982
 - (U) Launch 1st NDS Equipped GPS Spacecraft July 1983
 - (U) Defense Acquisition Board IIIA (LRIP) June 1986
 - (U) Launch First Operational Satellite 2nd Qtr FY 89
 - (U) Award GPS/NDS Block IIR Contract 3rd Qtr FY 89
 - (U) Award G/AIT Production Contract 3rd Qtr FY 89
 - (U) Defense Acquisition Board IIIB (Full Prod) 4th Qtr FY 89
 - (U) Start G/AIT DT&E 1st Qtr FY 90
 - (U) Achieve Worldwide 2-Dimensional NUDET Location Capability* 2nd Qtr FY 91
 - (U) Achieve Worldwide 3-Dimensional NUDET Location Capability* 4th Qtr FY 92
- * Launch Schedule Dependent

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